Mac OS X Server FAQ

General Information

Q. What is new with Mac OS X Server release 1.2?

A. Mac OS X Server release 1.2 adds support for the PowerPC G4 with Velocity Engine. If you want to run Mac OS X Server on a Power Mac G4 or Macintosh Server G4, you must use release 1.2.

Since the introduction of Mac OS X Server, Apple has released two system updates. These system updates, plus new fixes and performance improvements, are included in release 1.2.

Absent from the initial release was the ability to protect the server's data with an easy-to-use, native backup solution. Release 1.2 includes OmniGroup Backup Personal Edition for protecting your data on UFS and HFS Plus volumes. This is the first native backup solution for Mac OS X Server.

Release 1.2 also includes Apple's Network Assistant 4 software. Network Assistant includes tools to keep your workstations running efficiently. It's an all-in-one solution for remote assistance, system profiling and configuration, and software distribution on Mac OS–based systems. The Network Assistant 4 client software is now part of Apple's operating system and is included in Mac OS 9. The Network Assistant CD also includes support for Mac OS 8.1 through Mac OS 8.6 clients already running Network Assistant 3.5. With NetBoot, Macintosh Manager, and the addition of Network Assistant, Mac OS X Server is a complete solution for managing Macintosh workgroups.

Since Mac OS X Server began shipping, we've updated many of the Mac OS X Server components. QuickTime Streaming Server version 2 (available at www.apple.com/macosx/server) doubles the number of simultaneous Internet connections supported to 2,000 and adds a new Play List Broadcast feature for streaming Internet broadcasters. The NetBoot server includes updates to the Macintosh Manager and NetBoot Desktop Admin, and includes Mac OS 9 for all your NetBoot clients.

Q. I have the first release of Mac OS X Server. Should I upgrade to this release?

A. Mac OS X Server release 1.2 contains bug fixes and performance improvements not distributed in earlier patch releases. It also includes new versions of many important components. Every Mac OS X Server customer should upgrade.

Q. How do I get this update to Mac OS X Server?

A. Updates are available for $19.95 shipping and handling directly from Apple. Visit www.apple.com/macosx/server to find out how to upgrade.

Q. What is Mac OS X Server?

A. Mac OS X Server is the first in a line of new server software products that demonstrate Apple's commitment to providing servers that meet the needs of its customers. Mac OS X Server is available in both software and hardware configurations. It is built on the core technology of Mac OS X, the desktop operating system scheduled for summer 2000. It includes innovative services such as the Apache web server, WebObjects application server, QuickTime streaming, NetBoot workgroup management technology, and Apple file services.

Q. What languages does Mac OS X Server support?

A. Mac OS X Server is available in English, Japanese, French, and German.

Q. Who is the target customer for Mac OS X Server?

A. Mac OS X Server is designed for use by seasoned system and network administrators, who typically have had experience with configuring and managing at least two of the following:

- AppleShare IP and At Ease for Workgroups
- Complicated networks, including routing between subnets
- Other UNIX servers, such as Solaris and Linux

Q. Is Mac OS X Server the same as Mac OS X?

A. No. The client (end-user) version of the Mac OS X operating system is scheduled to be available in summer 2000. While Mac OS X will include an upgraded version of the Mac OS X Server foundation, the user experience will be optimized for a desktop operating system and will be more familiar to today's Mac OS users.

Unlike Mac OS X, today's Mac OS X Server does not include Carbon, the technology for porting today's Mac applications to the new foundation.

Q. Is a backup utility available for Mac OS X Server?

A. Yes. New in release 1.2 is OmniGroup Backup Personal Edition. This software lets you back up UFS, HFS, and HFS Plus volumes. While it performs full backups and restores, it supports only a single archive and does not back up NFS volumes. Users can also get OmniGroup Backup Professional Edition directly from the Omni Group at www.omnigroup.com.

Q. How does Mac OS X Server differ from AppleShare IP?

A. The two servers offer different types of services. AppleShare IP is a general-purpose server that includes a fully integrated set of services based on the familiar Mac OS 9 operating system, delivering high performance and exceptional ease of use. Some key services are unique to AppleShare IP, such as mail servers, SMB support, and firewalls.

Mac OS X Server provides innovative services such as an Apache web server, WebObjects network application services, QuickTime Streaming Server, and the revolutionary NetBoot server software for easily managing numerous Mac systems. Mac OS X Server provides these services through a powerful core operating system, which features advanced capabilities such as preemptive multitasking and protected memory for incredible stability and scalability.

Q. How does Mac OS X Server provide greater scalability than AppleShare IP?

A. Mac OS X Server is scalable in three key ways:

- The core system supports more than 1,000 simultaneous user connections.
- The multithreaded file system can handle more than 4,000 open files per process.
- Advanced networking provides support for multiple 100-megabit-per-second network interface cards, allowing simultaneous full-bandwidth file transfers across multiple subnets.

Q. Is Mac OS X Server the same as Rhapsody?

A. No. Mac OS X Server leverages a number of the technologies formerly called Rhapsody. In addition, it includes some innovative services that were not part of the original Rhapsody project.

Operating System

Q. What is the foundation for Mac OS X Server?

A. Mac OS X Server is based on a Mach microkernel that roughly corresponds to Mach 2.5. This microkernel is integrated with an implementation of BSD 4.4 to provide a full UNIX-style operating environment.

Q. Is Mac OS X Server based on UNIX?

A. Mac OS X Server is built on UNIX technologies, implementing most of the POSIX APIs, which makes it easy to port UNIX applications, particularly those from a BSD heritage. The main exception is applications with a graphical user interface, because Mac OS X Server doesn't include the X Window System UI toolkits. Mac OS X Server is built around a graphical interface, unlike traditional UNIX systems that rely on the command line. However, Mac OS X Server cannot be called a UNIX operating system, as it does not fully comply with the POSIX and X/OPEN specifications required for use of the UNIX trademark.

Q. Does Mac OS X Server use a command line interface?

A. The primary interface is a Mac-like user interface, allowing administration with graphical tools. For administrators who prefer the command line interface or make use of Telnet/rlogin for remote administration, a Terminal application and several UNIX shells are included, as well as standard tools such as NFS, FTP, Perl, Tcl, and Emacs.

Q. Does configuring Mac OS X Server require editing configuration files?

A. No. Mac OS X Server provides a friendly Setup Assistant and a rich set of graphical administration tools. Editing configuration files is not required for basic use of any of the core services. However, certain UNIX-derived services such as Apache use their existing configuration files for advanced administration.

Q. Does Mac OS X Server support remote administration?

A. Yes. There are currently several options, each suited to different purposes. Users, groups, and mountable volumes can be managed via a web-based remote-administration tool, similar to the one in AppleShare IP. Configuration information can also be managed from another Mac OS X Server system via NetInfo, the built-in Network Directory Service. In addition, UNIX-savvy system administrators can enable Telnet for command line–based remote administration.

Mac OS X Server Licensing

Q. What licenses are included with Mac OS X Server?

A. The license included with the retail version of Mac OS X Server allows you to install the Mac OS X Server system software on a single computer, which should be a Power Mac G4, Power Macintosh G3, Macintosh Server G4, or Macintosh Server G3 with at least 64MB of RAM.

Accessing the server requires no additional client licenses. This means you are allowed to connect unlimited numbers of clients (as many as your hardware can handle) to that single server using any of these services:

- Apache web serving
  — From any standard web browser
- QuickTime streaming services
  — Delivers digital media to QuickTime clients
- NetBoot services
  — Accessing the System Folder and applications folder over the network
- Macintosh Management services
  — Accessing user preferences and documents over the network
  — Includes a license to install Macintosh Management software on non-NetBoot systems
- Apple file services
  — For any AppleShare client over TCP/IP

In addition, the WebObjects runtime included with Mac OS X Server is licensed for up to 50 transactions per minute. You can purchase workgroup and unlimited deployment licenses for WebObjects from the Apple Enterprise Software group (www.apple.com/webobjects).

Note that it is possible for a single NetBoot client computer to access each of its services from a different server computer:

- Apache web services from Server A
- NetBoot system from Server B
- Macintosh Management services from Server C
- Apple file services from Server D

However, each of those servers would need to have its own licensed copy of Mac OS X Server.

Q. What about third-party licenses?

A. The version of the OmniWeb web browser that ships with Mac OS X Server includes a single-user license that allows only one computer to run OmniWeb on a network at one time. This license is enforced by the software. For more information on OmniWeb licensing, contact Omni Development at www.omnigroup.com.

Services

Q. What are the key services provided with Mac OS X Server?

A. There are five primary services in this release of Mac OS X Server:

- Apache web server
- WebObjects network application services
- QuickTime streaming
- NetBoot server software for workgroup administration
- Apple file services

Q. What is Apache?

A. Apache is today's most popular web server, serving over half of the public websites on the Internet. Apache is an open-source HTTP server developed by the Apache Group (www.apache.org). The Apache source code is freely available, making it easy for a large community to assist in fixing bugs, porting to new platforms, and customizing for special purposes.

Q. What version of Apache is included in Mac OS X Server?

A. Mac OS X Server includes Apache 1.3.9, the latest version available at the time of release. We are working with the Apache Group to ensure that future versions of Apache will compile directly on Mac OS X Server.

Q. How is Apache administered?

A. Basic administration of Apache is very simple. The Setup Assistant and control panels allow for easy on/off configuration, as well as selection of the hostname and documents directory. For advanced configuration, you can edit the same configuration files used by Apache on other platforms.

Q. What is WebObjects?

A. WebObjects is the industry's leading application server, with a flexible, scalable architecture for creating and deploying network applications. WebObjects provides a dynamic object-oriented environment for creating applications that can draw their data from a database server and run their user interface on any standard web browser. WebObjects makes it easy to develop personalized content, e-commerce solutions, and MIS applications. For more information, see www.apple.com/webobjects.

Q. Which version of WebObjects is included with Mac OS X Server?

A. Mac OS X Server includes WebObjects 4.0.1, along with a 50-transaction-per-minute deployment license. The deployment license can be used for testing or for low-volume usage, or it can be upgraded for full-scale Internet deployment. For Mac OS X Server release 1.2, Apple is including all of the WebObjects developer tools. These tools can be used for compiling WebObjects network applications, database client/server applications, or UNIX server applications.

The included license covers only the tools and runtimes for Mac OS X Server. WebObjects 4.0.1 for Windows NT and UNIX platforms will continue to be available as a separate product.

Q. What is QuickTime streaming?

A. QuickTime streaming is the fast, convenient, and affordable way to deliver rich QuickTime content over the Internet. The QuickTime Streaming Server is available free—with unlimited licensing—to all users of Mac OS X Server. With the release of QuickTime Streaming Server 2 (available at www.apple.com/macosx/server), a typical Mac OS X Server configuration can support more than 2,000 simultaneous streams to Internet (28.8-Kbps modem) clients, all with the fidelity and convenience of QuickTime. QuickTime streaming is built around industry-standard Internet protocols such as RTP and RTSP, and is fully integrated with Mac OS X Server to make it the easiest way to set up, use, and administer streaming. For more information, visit www.apple.com/quicktime.

Q. What is NetBoot?

A. Apple's exciting NetBoot software enables a network of Macintosh computers to run from the same shared System Folder and applications volume stored on the NetBoot server. Just update the NetBoot server, and all the other computers have instant access to the new configuration.

Q. Which Apple file services are included?

A. Mac OS X Server includes a high-performance native implementation of AFP, the Apple File Protocol, allowing it to share HFS Plus volumes with any AppleShare client over TCP/IP or AppleTalk. Client systems should be updated to the latest AppleShare client (release 3.8.2 or later) to ensure reliability, performance, and security. User, group, and mountable volume information can be managed remotely using a web-based remote-administration tool, similar to the one in AppleShare IP.

Q. Can I transfer my AppleShare IP user and group information to Mac OS X Server?

A. Yes. AppleShare IP includes the ability to export its user information, which can then be imported into Mac OS X Server. It does not export passwords and group information, however, so that information will need to be re-created.

Q. Does Mac OS X Server support Windows clients via SMB file sharing?

A. This release does not provide integrated support for native Windows (SMB) file sharing. However, Mac OS X Server can support Windows clients that function as AppleShare clients. Several third-party solutions should be available, including the free Samba server. For more information, visit www.samba.org.

Q. Is print spooling available?

A. Yes. Macintosh customers can use the Desktop Printer Utility LPR support to connect to a Mac OS X Server print spooler. Mac OS X Server can spool files to any PostScript-capable network printer over either AppleTalk or TCP/IP. There are also a number of third-party print-spooling products available for the publishing industry.

Q. How many clients can Mac OS X Server support?

A. The Macintosh Server G4 with Mac OS X Server configuration running a single service, if properly configured, can support millions of web transactions a day and more than a thousand AppleShare clients. The actual number of clients supported depends on your network environment, usage scenarios, and hardware configuration.

Q. Can Mac OS X Server run all these services at the same time?

A. That depends. Thanks to the power of preemptive multitasking, you can efficiently run multiple services on a single server. However, this requires more memory than running a single service, and it reduces the maximum load sustainable by any given service. The exact details depend strongly on your usage patterns. More information on optimal configurations is available in Apple's Tech Info Library at til.info.apple.com.

Q. Do all these services use the same user and group information?

A. No. Apple file services (and NFS) use the native users and groups based on NetInfo, allowing the information to be shared among computers. The Macintosh Management server maintains its own user and group information, as does Apache. WebObjects applications can be designed to work with Apache users and groups, but often verify against the underlying database used by the application.

NetBoot

Q. What are the advantages of the NetBoot server?

A. The NetBoot server makes it easy to manage a network of Macintosh computers. With a traditional network, adding an application or changing a system component requires administrators to physically update every computer on the network. NetBoot-capable Macintosh computers—called NetBoot clients—share the same System Folder and applications stored on the NetBoot server. Updating the shared System Folder or adding an application to the server immediately updates every NetBoot client on the network. The shared system components are protected to prevent users from corrupting the system. Since new NetBoot client computers on the network don't require any configuration, adding one system or creating a new lab of computers is fast and simple. Users also have access to their applications, documents, and personal desktop environment at any Macintosh on the network.

Q. Who should use the NetBoot server?

A. The NetBoot server is designed for any organization using Macintosh computers on a network. It helps educators bring technology to the classroom with low-cost, easy-to-manage computers like the iMac. NetBoot helps educators who want to:

- Improve the student-to-computer ratio
- Achieve technology goals under tight fiscal constraints
- Reduce the cost of managing their computing infrastructure
- Use existing technology resources

The NetBoot server is also ideal for business customers with Macintosh networks, particularly those who want to replace data entry or editorial terminals. It allows them to reduce their computer costs through low-cost Macintosh hardware and reduced administration requirements.

Q. What components are included with the NetBoot server?

A. The NetBoot server runs on Power Mac G4, Power Macintosh G3, Macintosh Server G4, and Macintosh Server G3 computers with the Mac OS X Server operating system. NetBoot includes:

- Three server applications: a BootP server, an AFP server, and a Macintosh Management server
- Two administration applications: NetBoot Desktop Admin for installing applications for use by NetBoot clients, and Macintosh Manager for administering users and groups on the network
- Mac OS 9 system software and accompanying applications used by the NetBoot client computers
- Macintosh Management client software for non-NetBoot computers

Q. What are the license requirements for using the NetBoot server with Mac OS 9?

A. You can operate any NetBoot-compatible version of the Mac OS software on a NetBoot-capable computer as long as the computer is licensed to operate that version of the Mac OS. This means the version of the Mac OS that was included with your Macintosh or any other version for which you've purchased a license. Mac OS X Server and the NetBoot server license agreement do not include any Mac OS 9 licenses. You must purchase these separately.

Q. What types of Macintosh computers can I use with the NetBoot server?

A. All iMac computers, iBook computers, 1999-model Power Macintosh G3 computers, Power Mac G4 computers, and PowerBook computers introduced in May 1999 or later have the necessary hardware and firmware needed to support NetBoot. Your NetBoot-capable Macintosh may require a firmware update to fully support the NetBoot feature.

Q. What are Macintosh Manager and the Macintosh Management server?

A. The Macintosh Management server is a technology for storing the user's computing environment on the server, so that the user can obtain his or her environment from any Macintosh on the network. This includes application preferences, desktop patterns, and fonts, depending on the level of customization allowed by the administrator. System administrators can use the Macintosh Manager application to configure the Macintosh Management server. The Macintosh Management server on Mac OS X Server systems can serve both NetBoot and non-NetBoot clients. The Macintosh Management server and Macintosh Manager enforce system policies and security access as well.

Q. How does the Macintosh Management server relate to At Ease for Workgroups?

A. The Macintosh Management server and Macintosh Manager are based on and can be considered a replacement for At Ease for Workgroups, an earlier Apple product available only to education customers.

Q. How does NetBoot relate to At Ease?

A. NetBoot takes system management one step further and introduces a new model for keeping Mac clients up to date. Many of the features of At Ease have been advanced and incorporated in NetBoot.

Q. Can I manage non-NetBoot clients with Macintosh Manager?

A. Yes. An installer is provided that adds the necessary components to non-NetBoot Macintosh computers.

Q. What are the system requirements for NetBoot and Macintosh Management client computers?

A. The requirements are as follows.

NetBoot client computers:

- A Power Mac G4 computer, a 1999-model Power Macintosh G3 computer, an iBook computer, an iMac computer, or a PowerBook computer introduced in May 1999 or later
- 32MB of RAM

Macintosh Management client computers:

- A 68040 or PowerPC processor–based Macintosh computer
- Mac OS 8.1 or later
- 32MB of RAM

Q. Can other Mac systems be upgraded to support NetBoot?

A. No. Systems that are not NetBoot-capable can only take advantage of the file, web, and Macintosh Management services of Mac OS X Server.

Q. How does a Macintosh start up from the network?

A. At startup, the NetBoot client computer broadcasts a BootP request on the network. BootP is a standard industry protocol for allowing computers to discover information about their network settings and the location of files to execute from a network server. The NetBoot server receives the BootP request and replies to the client's request with the information needed to start up. The client uses the information to configure its network settings and begins a TFTP download of the Mac OS into RAM. The client uses this file to finish booting.

Q. How do I set up a Macintosh to start up from the server?

A. A NetBoot-capable Macintosh requires no software setup to start up from the NetBoot server. To make a Macintosh boot the first time, hold down the "N" key until the Mac OS logo appears. Once the computer has been booted, it will always start up from the network unless you set the Startup Disk control panel to start up from a different volume.

Q. What version of the Mac OS runs on a NetBoot client?

A. NetBoot clients can run Mac OS 8.5.1, 8.6, or 9.

Q. Do I need special applications for NetBoot client computers?

A. NetBoot clients run most Macintosh applications available today. NetBoot does not include any special provisions for software licensing. You need to work with individual vendors to ensure that you have the appropriate number of licenses required by each application used on NetBoot clients.

Q. Does a NetBoot client use its own hard disk drive?

A. For normal operation, the NetBoot client does not use its local hard disk drive. However, the local drive can be used for storing files and applications and providing disk space for the computer's virtual memory requirements. Administrators can use a special system extension to unmount the local hard disk drive, making it unavailable to the user.

Q. Where are user files stored?

A. In the NetBoot environment, every user has a home folder. These home folders can be located on the NetBoot server or on any AppleShare server connected to the network. The user's home folder appears on the desktop whenever the user logs in. Users can access their home folders via AppleShare from any Macintosh on the network, not just from NetBoot clients.

Q. Why do users log in to their computers?

A. The NetBoot server maintains a directory of users. When users log in, the server provides them with their personal desktop and data files, no matter which computer on the network they are using. It also provides user authentication, protects network resources, and enables administrator-defined system policies.

Q. What are the NetBoot server requirements?

A. The NetBoot server requires Mac OS X Server software running on a Power Macintosh G3, Power Mac G4, Macintosh Server G3, or Macintosh Server G4. The minimum recommended configuration is a 5GB hard disk and 64MB of RAM. A server can support different quantities of client computers, depending on its configuration.

Q. What are the networking requirements?

A. The NetBoot server should connect to the network at no less than 100 Mbps for each connected port. NetBoot clients should also have at least 100-Mbps shared connections or 10-Mbps switched (dedicated) connections.

Q. Can NetBoot be used across the Internet?

A. No. Currently the NetBoot server is designed only for use on 100-Mbps Ethernet networks.

Q. Is Apple making "diskless" computers?

A. No. NetBoot gives users the flexibility to boot their computers from the local hard disk drive or from the NetBoot server.

Hardware and Compatibility

Q. What are the hardware requirements for Mac OS X Server?

A. Mac OS X Server requires a Power Macintosh G3, Power Mac G4, Macintosh Server G3, or Macintosh Server G4 with at least 64MB of memory and a 1GB hard disk drive. For heavily loaded servers, at least 128MB of RAM is recommended, and 200MB or more for multiple services. Mac OS X Server does not run on iMac, iBook, PowerBook, or any earlier Macintosh systems.

Q. Will Mac OS X Server be available for Intel machines?

A. Apple has no plans to provide Mac OS X Server for any architecture other than PowerPC.

Q. Does Mac OS X Server support all the Power Macintosh G3 and Power Mac G4 build-to-order options?

A. No. It supports ATA and SCSI drives, Ethernet, and limited USB (for keyboard and mouse). There is currently no support for serial ports, FireWire, or LocalTalk.

Q. Does Mac OS X Server support RAID?

A. Mac OS X Server does not include RAID software. However, it is compatible with a number of Ultra2 SCSI–based RAID devices, including those from MicroNet.

Q. Can I use third-party PCI cards with Mac OS X Server?

A. No. Mac OS X Server only includes drivers for Apple's SCSI and Ethernet build-to-order options for the Power Macintosh G3 and Power Mac G4 lines. Mac OS X Server uses a different driver model than Mac OS 9, and therefore third-party developers would need to write drivers to support Mac OS X Server. To date no third parties have announced plans to do so. Because of variations among versions, even third-party cards that are very similar to Apple-supplied cards may not function properly, if at all. You would need to contact the vendors to find out whether they offer versions of their products that they believe will work with Mac OS X Server.

Pricing and Availability

Q. What is the price of Mac OS X Server?

A. The Mac OS X Server software retail price is estimated to be $499. The software is available to education customers for $249. The retail price of the hardware configuration, Macintosh Server G4 with Mac OS X Server, is estimated to be $4,199.

Q. What licensing do I get for that price?

A. Just about everything. You get unlimited client access (as much as your hardware can handle) for:

- Apache web server
- QuickTime streaming
- Apple file services
- NetBoot network startup
- Macintosh Management server (both NetBoot and non-NetBoot systems)

For WebObjects, you get a basic 50-transaction-per-minute deployment license. You can purchase WebObjects upgrade licenses through the normal Apple Enterprise Software channels. For more information, see www.apple.com/webobjects.

Q. What is included in the Macintosh Server G4 with Mac OS X Server configuration?

A. The Macintosh Server G4 with Mac OS X Server includes a 500-MHz PowerPC G4 processor featuring the Velocity Engine vector processing unit with 162 integrated Single Instruction Multiple Data (SIMD) instructions and full 128-bit internal memory data paths. The system also includes an ATI RAGE 128 Pro graphics card, 256MB of high-performance PC100 SDRAM, 1MB backside level 2 cache running at half the processor speed, 100-MHz system bus supporting up to 800-MBps data throughput, 18GB 10,000-rpm Ultra2 LVD SCSI hard disk drive with PCI card, DVD-ROM drive, three 3.5-inch hard disk drive expansion bays, built-in 10/100BASE-T Ethernet connector and four-port 10/100BASE-T Ethernet PCI card, and Mac OS X Server software (preinstalled).

Q. What build-to-order options are available for the Macintosh Server G4 with Mac OS X Server?

A. In addition to choosing a prebuilt system, you can order a custom-configured computer from your authorized Apple reseller or the online Apple Store. Build-to-order options include memory, hard disk drives, SCSI support, and more. For up-to-date information about options and availability, visit www.apple.com/store.

Q. Where are the software and hardware products available?

A. The products are available through most traditional Apple channels, including the online Apple Store, Apple sales agents, and most Apple resellers.

Q. Are the products available from Apple Enterprise Sales?

A. Yes. For this release, Mac OS X Server is the only vehicle for purchasing WebObjects 4 for Power Macintosh systems. WebObjects deployment licenses and consulting services continue to be available solely through Apple Enterprise Sales.

Q. Are there any upgrade or volume discounts?

A. No. This is an update to a new line of server products.

For More Information

For more information about Mac OS X Server, visit www.apple.com/macosx/server.

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